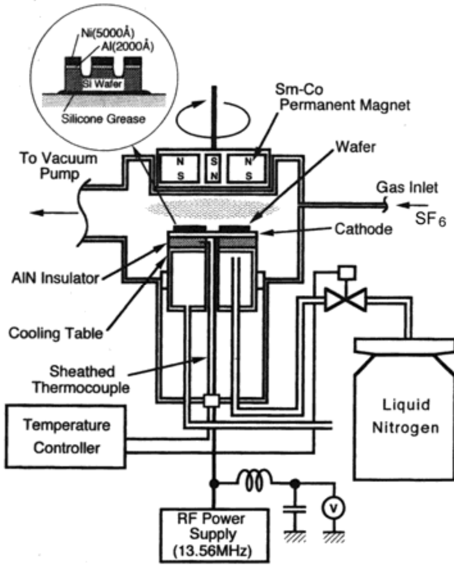
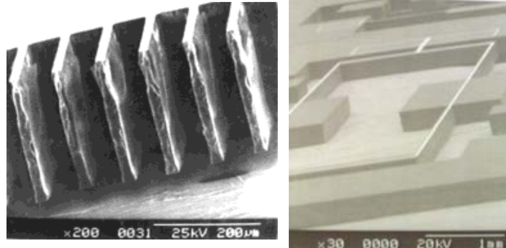
Etching (Deep RIE, XeF_2 Etching, Thickness Monitor during Etching)



Wet anisotropic etching of (110) Si
(thickness 200 μ m, width 25/50/100 μ m)

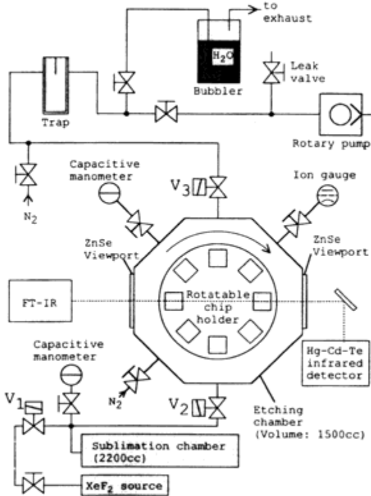
Si Deep RIE
(thickness 200 μ m, wafer temp. −120℃)

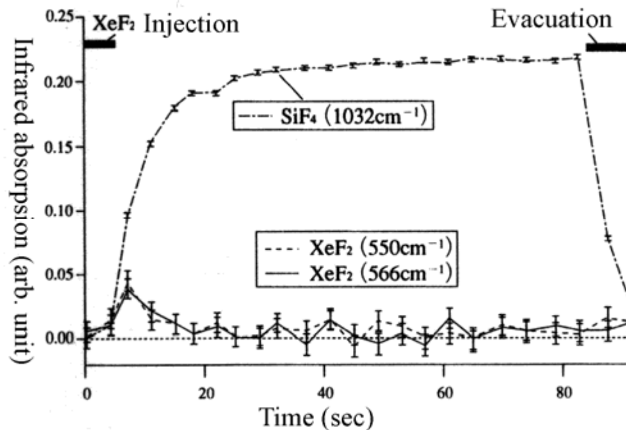
Polyimide RIE
(Thickness 80 μ m, O_2 gas)



Deep RIE

Reference : M.Takinami, K.Minami and M.Esashi : High-Speed Directional Low-Temperature Dry Etching for Bulk Silicon Micromachining, Technical Digest of the 11th Sensor Symposium (1992) pp.15-18

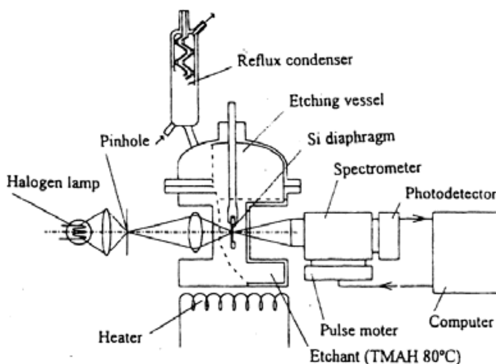


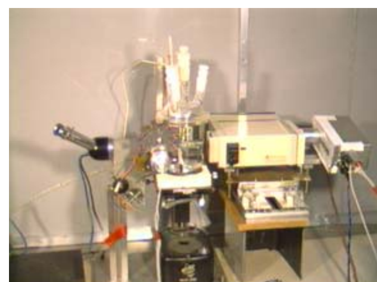


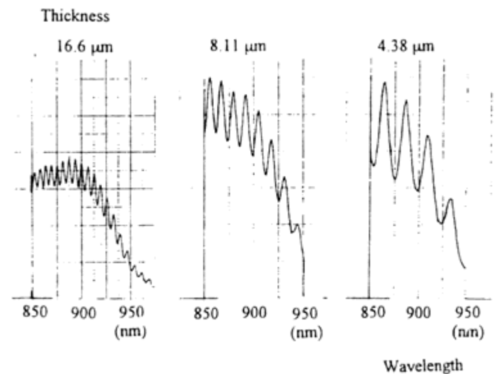
Si dry etching with XeF_2

Reference : R.Toda, K.Minami and M.Esashi, Thin Beam Bulk Micromachining Based on RIE and Xenon Difluoride Silicon Etching, Sensors and Actuators, A66 (1998) pp.268-272

Thickness 2/3/5/7 μ m from the top







Thickness monitor during wet etching

Reference : K.Minami, H.Tosaka and M.Esashi, Optical in-situ Monitoring of Silicon Diaphragm Thickness during Wet Etching, J. of Micromechanics and Microengineering, 5 (1995) pp.41-46